

We claim:

1. A golf car, comprising:
5 a frame; and
a composite body assembly mounted on the frame and configured to increase rigidity of the frame, the composite body assembly including:
a front body section including at least two molded panels connected
together so as to form a clam shell assembly; the molded panels each being formed
10 of a fiber-reinforced polymer; and
a rear body section formed of a molded fiber-reinforced polymer.
2. The golf car as set forth in claim 1, wherein the front and rear body sections are
each formed of a compression molded polymer.
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3. The golf car as set forth in claim 1, wherein the frame is formed of at least one of
aluminum and steel.
4. The golf car as set forth in claim 1, wherein the frame includes two longitudinally-
20 extending, laterally spaced-apart rails and at least one crossbeam extending between and
connecting the two rails.
5. The golf car as set forth in claim 4, wherein the frame further includes a dashboard
support bar connected with the two rails.
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6. The golf car as set forth in claim 1, wherein the front and rear body sections are
each independently attachable to the frame.
7. The golf car as set forth in claim 1, wherein the rear body section includes an
30 integral golf bag support.
8. The golf car as set forth in claim 1, wherein the rear body section includes an
integral rear bumper to provide impact resistance to the golf car.

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9. The golf car as set forth in claim 1, wherein the rear body section has an access opening, the access opening being located to facilitate access to a motor and associated drive components, and a removable panel configured to obstruct the access opening when disposed on the rear body section.

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10. The golf car as set forth in claim 1, wherein the rear body section includes a shell with an open lower end, the shell at least partially bounding an interior chamber.

11. The golf car as set forth in claim 11, further comprising a motor and associated drive system components connected with the frame and at least partially disposed within the interior chamber of the rear body section.

12. The golf car as set forth in claim 1, wherein the clam shell assembly include at least one storage compartment integrally formed in at least one of the panels.

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13. The golf car as set forth in claim 1, wherein the clam shell includes an integral dashboard and floorboard.

14. The golf car as set forth in claim 1, wherein the front and rear body sections are each removably connected with the frame.

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15. The golf car as set forth in claim 1, further comprising at least one decorative body panel mountable to the composite body assembly and recessed inwardly relative to a periphery of the composite body assembly so as to prevent impact with the decorative body panel.

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16. The golf car as set forth in claim 15, wherein the decorative body panels are constructed of a high-gloss polymer.

17. A golf car, comprising:

a high-strength molded composite body assembly, formed from at least one molded fiber-reinforced polymer panel, the composite body assembly having a periphery;

a plurality of wheels supporting the body for movement along the ground; and

5 at least one decorative body panel disposed on the composite body assembly, the body panel being recessed inwardly relative to the periphery of the composite body assembly such that the body assembly extends outwardly of the decorative body panel so as to prevent impact with the body panel.

10 18. The golf car as set forth in claim 17, further comprising a frame to which the wheels and the composite body assembly are attached.

19. The golf car as set forth in claim 18, wherein the frame is formed of at least one of aluminum and steel.

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20. The golf car as set forth in claim 18, wherein the frame includes two longitudinally extending, laterally spaced-apart rails, at least one crossbeam extending laterally between and connecting the two frame rails.

20 21. The golf car as set forth in claim 20, wherein the frame further includes a dashboard support bar connected with the two rails and configured to support a dashboard of the golf car.

22. The golf car as set forth in claim 17, wherein the composite body assembly is
25 formed of at least one compression molded panel.

23. The golf car as set forth in claim 17, wherein the composite body assembly includes a front body section, the front body section including at least two molded fiber-reinforced polymer panels connected together so as to form a clam shell assembly, and a
30 rear body section formed of a fiber-reinforced polymer.

24. The golf car as set forth in claim 23, wherein the clam shell assembly and the rear composite body are each independently attachable to a frame.

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25. The golf car as set forth in claim 23, wherein the clam shell assembly includes an integral dashboard and floorboard.
26. The golf car as set forth in claim 23, wherein the rear body section includes an
5 integral golf bag support.
27. The golf car as set forth in claim 23, wherein the rear body section includes an integral bumper to provide impact resistance to the golf car.
- 10 28. The golf car as set forth in claim 23, wherein the rear body section includes a rear access panel to facilitate access to at least one of a motor and a gearbox.
29. The golf car as set forth in claim 17, wherein the front body section includes an integrally formed dashboard and floorboard.
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- 30 The golf car as set forth in claim 17, wherein the composite body assembly includes storage compartments integrally formed with the at least one molded fiber-reinforced polymer panel.
- 20 31. The golf car as set forth in claim 17, wherein the decorative body panels are formed of a high-gloss polymer.

32. A utility vehicle, comprising:

a frame; and

a composite body assembly attachable to the frame and configured to increase rigidity of the frame, the composite body including:

5 a front body section including at least two molded fiber-reinforced polymer panels connected together so as to form a front clam shell assembly; and

a rear body section formed of a molded fiber-reinforced polymer, each one of the front and rear body sections being independently attachable to the frame.

10 33. The utility vehicle as set forth in claim 32, further comprising decorative body panels formed of a high-gloss polymer, the decorative body panels being attached to the composite body assembly and recessed inwardly relative to a periphery of the composite body assembly such that the composite body assembly extends outwardly of the decorative body panels to protect the decorative body panels.

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34. The utility vehicle as set forth in claim 32, wherein the composite body assembly is formed of a compression molded polymer.

20 35. The utility vehicle as set forth in claim 32, wherein the frame is formed of at least one of aluminum and steel.

36. The utility vehicle as set forth in claim 32, wherein the frame includes two longitudinally-extending, laterally spaced-apart rails and at least one crossbeam extending between and connecting the two rails.

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37. The utility vehicle as set forth in claim 32, wherein the front and rear body sections are each removably connected with the frame.

30 38. The utility vehicle as set forth in claim 32, wherein the clam shell assembly includes an integral dashboard and floorboard.

39. The utility vehicle as set forth in claim 32, wherein the clam shell assembly includes at least one storage compartment integrally formed in at least one of the two panels.

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40. The utility vehicle as set forth in claim 32, wherein the rear body section includes an integrally formed rear bumper, the rear bumper positioned to absorb at least some impact.
- 5 41. The utility vehicle as set forth in claim 32, wherein the rear composite body includes a rear access panel positioned to allow access to at least one of a motor and drive components.

42. A method for manufacturing a vehicle comprising the steps of:
providing a frame;
connecting two molded fiber-reinforced polymer panels to form a clam shell assembly;
- 5 mounting the clam shell assembly to a front portion of the frame; and
mounting a rear body section to a rear portion of the frame, the rear body section being formed of a fiber-reinforced polymer, the clam shell assembly, the rear body section and the frame forming a substantially rigid high-strength frame and body assembly.
- 10 43. The method as set forth in claim 42, further comprising the step of connecting adding decorative body panels to the frame and body assembly, wherein the decorative body panels are recessed inward relative to a periphery of the frame and body assembly such that the frame and body assembly protects the decorative body panels from damage.
- 15 44. The method as set forth in claim 42, wherein the vehicle is one of a golf car and a utility vehicle.

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45. A golf car, comprising:
a frame; and

a composite body assembly mounted to the frame and configured to increase rigidity of the frame, the body assembly including a front body section, the front body
5 section including upper and lower panels connected together so as to form a generally box-like frame, and a rear body section, the rear body section being formed as a shell having an open lower end and at least partially bounding an interior chamber.

46. The golf car as set forth in claim 45, wherein the frame includes two
10 longitudinally-extending, laterally spaced-apart rails and at least one crossbeam extending between and connecting the two rails.

47. The golf car as set forth in claim 46, wherein the frame further includes a dashboard support bar connected with the two rails.

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48. The golf car as set forth in claim 45, further comprising a motor and associated drive system components connected with the frame and at least partially disposed within the interior chamber of the rear body section.

20 49. The golf car as set forth in claim 48, wherein the power source includes at least one of a fuel tank and an electric battery.

50. The golf car as set forth in claim 45, wherein the rear body shell is of one-piece construction.

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51. The golf car as set forth in claim 45, wherein the rear body section includes an integral golf bag support.

52. The golf car as set forth in claim 45, wherein the rear body section includes an
30 integral rear bumper to provide impact resistance to the golf car.

53. The golf car as set forth in claim 45, wherein the rear body section includes an access opening through the shell and located so as to facilitate access to a motor and associated drive components.

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54. The golf car as set forth in claim 45, wherein the front body section includes at least one storage compartments integrally formed in at least one of the two panels.

55. The golf car as set forth in claim 45, wherein the front body section includes an integrally formed dashboard and floorboard.

56. The golf car as set forth in claim 45, wherein the front and rear body sections are each removably attached to the frame.

57. The golf car as set forth in claim 45, further comprising at least one decorative body panel mountable to the composite body assembly and recessed inwardly relative to a periphery of the composite body assembly so to prevent impact with the decorative panel.

58. The golf car as set forth in claim 57, wherein the decorative body panels are constructed of a high-gloss polymer.

~~59~~ 60. The golf car as set forth in claim 45, wherein each one of the front and rear body sections is formed of a molded fiber-reinforced polymer.

20 ~~61~~ ⁶⁰ The golf car as set forth in claim 45, wherein the front body section is configured to support at least one of an accelerator pedal assembly and a brake pedal assembly.

RULE 1.26